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INTERNATIONAL CONFERENCE ON DYNAMICAL PROCESSES IN THE
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CHEMISTRY M D FAYER ET AL. 14 JUL 83 N00014-83-0-0116

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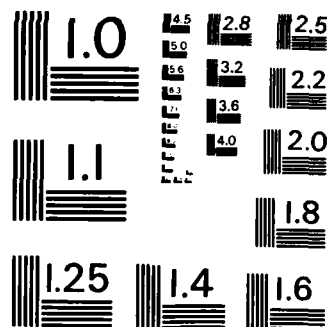
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FINAL REPORT ON
"Fourth International Conference on Dynamical Processes
in the Excited States of Solids"

AD-A135710

Stanford University, July 11-14, 1983

Cochairmen:

M. D. Fayer
Chemistry Dept.
Stanford University

R. M. Macfarlane
IBM Research Laboratory
San Jose, California

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PHILOSOPHY

This meeting aims to bring together scientists active in the field of dynamical processes in excited states of solids. The intent is to attract participants from related areas of physics and chemistry who do not normally attend the same meetings and create an informal atmosphere for free exchange of ideas and recent research results. Thus the conference on one hand is focused on excited state dynamics in solids, on the other hand it draws participants from diverse disciplines in physics and chemistry. The use of university campuses and student housing fosters the kind of atmosphere that this meeting is now known for.

PARTICIPANTS

The DPC-83 had a truly international nature with participants from 13 countries. A consequence of the Western U.S. location and the modest budget of this conference was that a majority (68%) of the participants were from the U.S. Many of these, and also a number from Europe, were students or post doctorals which is consistent with our desire to have significant participation by those active in doing the research. A summary of the countries of origin is given in Table I.

Table I
Participants at DPC-83 by Country

United States	90	Israel	2
W. Germany	10	Switzerland	2
France	6	Australia	1
Japan	6	Greece	1
The Netherlands	5	Ireland	1
U.K.	5	New Zealand	1
Canada	2		
TOTAL NUMBER OF PARTICIPANTS - 132			

The current plan to alternate the conference between North America and Europe will maintain a balance of active participation.

CONTENT

This was the fourth DPC conference, the first being held at the University of Georgia, U.S.A, in 1978, the second at the University of Wisconsin, U.S.A., in 1979 and the third at the University of Regensburg, W. Germany, in 1981. This year we increased the number of papers accepted on organic materials and included for the first time papers on semiconductors. Also new to this fourth DPC were poster sessions which accounted for about one half of the papers presented (see Table II). This was very successful and reduced the pressure on the oral sessions since a basic aim of this conference is to avoid the specialization that accompanies parallel sessions.

Table II

Distribution of Papers Presented at DPC-83 by Subject Matter *includes*

Inorganic Insulators	-	38
Organic Materials	-	22
Theory and General	-	16
Semiconductors	-	15
		91

Table II gives a breakdown of the 91 papers presented by subject matter. There were 41 oral presentations and 50 poster presentations. The number of papers per participant, 0.7, reflects the active role of those attending this meeting.

The application of laser techniques in spectroscopic studies continues to expand in keeping with the advancement of laser technology. This will drive the field of excited state dynamics for some time to come. Dynamics of excitons, not carriers in semiconductors and excitonic polaritons in the picosecond time scale were reported. Optical coherence studies using photon echo, optical free decay and nondegenerate four-wave mixing techniques were

presented and these techniques have promise of increasing applicability. On the other hand, there were fewer papers on fluorescence line narrowing. The semiconductor area was actively represented by papers on energy transport and localization both in bulk materials and two-dimensional hetero-structures.

A session was held on optical dephasing in glassy materials and this brought together the principal workers in this field for a lively and fruitful discussion. One problem that was highlighted was that different techniques holeburning, psec accumulated echo, fluorescence line narrowing, are not often done on the same glassy system so that direct comparison of results is difficult or impossible. Theoretical analysis of dephasing has always followed the experimental data. A broad range of experiments on a single material is called for.

A feature of DPC meetings has been a session on high frequency phonon dynamics. These phonons can be produced by laser pumping, heat pulses, or as reported at this conference, by point contacts. Stimulated emission of phonons in ruby was reported. This meeting provides an excellent forum for exchange between scientists working in phonon physics and laser spectroscopy.

FUNDING

This meeting had a relatively low budget and our philosophy was to provide partial support to enable key speakers to come, and require that they find their own support as well. Various levels of support were offered ranging from payment of the \$85 registration fee to a total grant of \$585 in three cases. A sharp division between invited and contributed papers was not made in the proceedings but the length of talks varied from 15 minutes to 40 minutes. In the future, having a higher level of funding in place earlier would facilitate

arrangements for speakers from Europe, for example. In only a small number of cases did we lose important speakers by not having enough support to offer them.

The next meeting is planned to take place at the University of Lyon, France in 1985.

Judging by the rate of progress in the field this will be another exciting meeting.

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Dr. Masaki Aihara
Yamaguchi University
Department of Physics
Faculty of Liberal Arts
Yamaguchi 753, JAPAN

Dr. Panos Argyratis
Department of Physics
University of Crete
Iraklion, Crete
GREECE

Dr. Baruch B. Barnett
Soreq Nuclear Research Center
Yavne, ISRAEL

Dr. Harmut Benk
M.I.T.
Department of Chemistry, 6-222B
Cambridge, MA 02139

Dr. A. F. Bernhardt
Quanta Ray
1250 Charleston
Mountain View, CA 94043

Dr. Gary C. Bjorklund
IBM Research Laboratory
5600 Cottle Road, K46/281
San Jose, CA 95193

Dr. Alexander Blumen
Technical Universitaet Munchen
Lehrstuhl fuer Theoretical Chemie
Lichtenbergstrasse 4
D8046 Garching
FEDERAL REPUBLIC OF GERMANY

Mr. Charles Boghosian
Army Research Office
PO Box 1221
Research Triangle Park, NC 27709

Dr. U. Bogner
Universitat Regensburg
Institut Physik III
Universitaetsstr. 31
D8400 Regensburg
WEST GERMANY

Professor Steven Boxer
Chemistry Department
Stanford University
Stanford, CA 94305

Professor Rubin Braunstein
Physics Department
University of California
Los Angeles, CA 90024

Dr. R.G. Brewer
IBM Research Laboratory
5600 Cottle Road, K01/281
San Jose, CA 95193

Dr. Matthijs M. Broer
Bell Telephone Laboratories
600 Mountain Avenue
Murray Hill, NJ 07974

Dr. P.-A. Brugger
IBM Research Laboratory
5600 Cottle Road, K64/282
San Jose, CA 95193

Dr. Donald V. Brumbaugh
Emulsion Research Division
Research Laboratories
Eastman Kodak Company
1669 Lake Avenue
Rochester, NY 14650

Richard Brundage
Department of Physics
University of Wisconsin
150 University Avenue
2531 Sterling Hall
Madison, WI 53706

Dr. Donald M. Burland
IBM Research Laboratory
5600 Cottle Road, K64/282
San Jose, CA 95193

Dr. George Castro
IBM Research Laboratory
5600 Cottle Road, K31/281
San Jose, CA 95193

Dr. Elisha Cohen
Xerox Palo Alto Research Center
3333 Coyote Hill Road
Palo Alto, CA 94305

Professor R. L. Cone
Montana State University
Department of Physics
Bozeman, MT 59717

Timothy Corcoran
Department of Chemistry
University of California
Los Angeles, CA 90024

Robert M. Corn
IBM Research Laboratory
5600 Cottle Road, K33/281
San Jose, CA 95193

Professor Hans G. Danielmeyer
Institut Angewandte Physik
Jungstr. 11
2000 Hamburg 36
FEDERAL REPUBLIC OF GERMANY

Dr. P. F. Darejeh
Montana State University
Department of Physics
Bozeman, MT 59717

Dr. R. G. Denning
Inorganic Chemistry Laboratory
Oxford University
South Parks Road
Oxford OX1 3QR, ENGLAND

Dr. R. G. DeVoe
IBM Research Laboratory
5600 Cottle Road, K01/281
San Jose, CA 95193

Dr. J. I. Dijkhuis
Fysisch Laboratorium
Rijksuniversiteit
PO Box 80.000
3508 TA Utrecht
THE NETHERLANDS

Professor Dana Dlott
University of Illinois
Box 37, Noyes Laboratory
505 South Mathews Avenue
Urbana, IL 61801

Professor M. A. El-Sayed
Department of Chemistry
University of California
Los Angeles, CA 90024

Pierre Evesque
Laboratoire d'Optique Physique
10 rue Vauquelin
75231 Paris Cedex 05, FRANCE

Dr. Philippe Fauchet
Ginzton Laboratory
Stanford University
Stanford, CA 94305

Professor M. D. Fayer
Chemistry Department
Stanford University
Stanford, CA 94305

Dr. R. Fields
Apollo Lasers
Chatsworth, CA

Julie Fouquet
Department of Applied Physics
Stanford University
Stanford, CA 94305

Professor Anthony Francis
University of Michigan
Department of Chemistry
Ann Arbor, MI 48106

Glenn H. Frederickson
1036 Colorado Avenue, #F
Palo Alto, CA 94303

Professor Richard Friesner
Chemistry Department
University of Texas
Austin, TX 78712

Professor Jurg Funfschilling
Department of Physics
University of Basel
Klingelbergstrasse 82
CH-4056 Basel, SWITZERLAND

S. K. Gayen
Physics Department
University of Connecticut
Storrs, CT 06268

Professor Wolfgang Gebhardt
 Universitat Regensburg
 Fakultat fur Physik
 Universitatstrasse 31
 8400 Regensburg
 WEST GERMANY

Dr. Azriel Z. Genack
 Exxon Research and Engineering Co.
 PO Box 45
 Linden, NJ 07036

Dr. T. J. Glynn
 Department of Physics
 University of Wisconsin
 1150 University Avenue
 Madison, WI 53706

Dr. Douglas W. Hall
 L-490, PO Box 808
 Lawrence Livermore Laboratory
 Livermore, CA 94550

Professor Douglas Hamilton
 Physics Department
 University of Connecticut
 Storrs, CT 06268

Professor Eiichi Hanamura
 University of Tokyo
 Department of Applied Physics
 Faculty of Engineering
 Hongo, Bunkyo-ku
 Tokyo, 113 JAN

Professor David M. Hanson
 State University of New York
 Department of Chemistry
 Stony Brook, NY 11794

Dr. Richard Harley
 Hirst Research Center
 East Lane, Wembley
 Middlesex HA9 7PP
 ENGLAND, UK

Dr. Zamer Hasan
 Department of Solid State Physics
 Australian National University
 Canberra, ACT, 2600
 AUSTRALIA

Dr. W. Hayes
Clarendon Laboratory
Parks Road
Oxford
UNITED KINGDOM

Dr. J. Hegarty
Bell Telephone Laboratories
600 Mountain Avenue
Murray Hill, NJ 07974

Professor David L. Huber
Physics Department
209 Sterling Hall
University of Wisconsin
Madison, WI 53706

Mrs. D. Hulin
Groupe de Physique des Solides
de l'E.N.S., Tour 23
Place Jussieu, 75251 Paris
FRANCE

Dr. Alan Huston
IBM Research Laboratory
5600 Cottle Road, K31/281
San Jose, CA 95193

Dr. C. Ironside
Clarendon Laboratory
Oxford University
Parks Road
Oxford, OX1 3PU
England, UNITED KINGDOM

Dr. Bret E. Jackson
Chemistry Department
77 Massachusetts Avenue, Room 6-232
MIT
Cambridge, MA 02139

Dr. Bernard Jacquier
Physico-Chimie des Matériaux Luminescents
Université de Lyon I
43, Bd du 11 Novembre 1918
69622 Villeurbanne, FRANCE

Stephen M. Janes
New York University
Department of Chemistry
4 Washington Place
New York, NY 10003

Dr. Eric D. Jones
Sandia Laboratories
Division 1124, PO Box 5800
Albuquerque, NM 87185

Dr. Glynn D. Jones
Physics Department
Canterbury University
Private Bag
Christchurch
NEW ZEALAND

Dr. J. Kash
IBM T. J. Watson Research Center
PO Box 218, 29-205, 461
Yorktown Heights, NY 10598

Emily Kintzer
IBM Research Laboratory
5600 Cottle Road, K01/281
San Jose, CA 95193

Dr. Joseph Klafter
Exxon Research & Engineering Co.
PO Box 45
Linden, NJ 07036

Professor M. V. Klein
Physics Department
University of Illinois
1110 W. Green Street
Urbana, IL 61801

Professor Bryan E. Kohler
Department of Chemistry
Wesleyan University
Middletown, CT 06457

Dr. Kenichi Kojima
Department of Physics
Yokohama City University
22-2 Seto Kanazawaku
Yokohama 236, JAN

Professor J. A. Koningstein
Department of Chemistry
Carleton University
Colonel By Drive
Ottawa, Ontario K1S 5B6
CANADA

Professor Raoul Kopelman
Department of Chemistry
University of Michigan
Ann Arbor, MI 48109

Dr. Shui T. Lai
Allied Corporation
PO Box 1021 R, MRL
Morristown, NJ 07960

Dr. R. Lagos
Chemistry Department
University of Texas
Austin, TX 78712

Dr. Israel Laulicht
University of Wisconsin
Department of Physics
Madison, WI 53706

Li-Shing Lee
Physics Department
Stanford University
Stanford, CA 94305

Dr. M.D. Levenson
IBM Research Laboratory
5600 Cottle Road, K32/281
San Jose, CA 95193

C. G. Levey
Physics Department
University of Wisconsin
1150 University Avenue
Madison, WI 53706

Dr. Tom Lin
Chemistry Department
Washington University
St. Louis, MO 63130

Professor Katja Lindenberg
Department of Chemistry, B-0114
University of California at San Diego
La Jolla, CA 92093

Dr. Jing-Qing Liu
Laboratoire de Spectrometrie Physique
B.P. 53X-38041 Grenoble
Cedex, FRANCE

Roger F. Loring
Department of Chemistry
Stanford University
Stanford, CA 94305

Professor Fritz Luty
Physics Department
University of Utah
Salt Lake City, UT 84112

Dr. Sung-Kwun Lyo
Sandia Laboratories
PO Box 5800
Division 1151
Albuquerque, NM 87185

Dr. Roger Macfarlane
IBM Research Laboratory
5600 Cottle Road, K32/281
San Jose, CA 95193

Dr. A. P. Marchetti
Emulsion Research Division
Eastman Kodak Company
1669 Lake Avenue
Rochester, NY 14650

Dr. Rudy Marcus
Office of Naval Research
1030 E. Green Street
Pasadena, CA 91106

Professor Kenneth A. Martin
Gordon College
Department of Chemistry
Winham, MA 01984

Dr. Yasuaki Masumoto
Institute for Solid State Physics
University of Tokyo, Roppongi 7-22-1
Minato-ku, Tokyo 106, JAN

Dr. B. McCaul
Molelectron Corporation
177 N. Wolfe Road
Sunnyvale, CA 94086

Professor Richard S. Meltzer
Department of Physics and Astronomy
University of Georgia
Athens, GA 30602

Professor Yves Merle-D'Aubigne
Laboratoire de Spectrometrie Physique
Universite Grenoble I
B.P. 68, 38402 Saint Martin D'Heres
Cedex, FRANCE

D. Miller
7F Hoskins
Stanford, CA 94305

Dr. William Miniscalco
GTE Laboratories
40 Sylvan Road
Waltham, MA 02254

Masaharu Mitsunaga
110 Roundtable Drive
San Jose, CA 95111

Dr. J. Mlynek
Institut fuer Quantenoptik
Universitat Hannover
Welfengarten 1
3000 Hannover 1
WEST GERMANY

Dr. W. E. Moerner
IBM Research Laboratory
5600 Cottle Road, K32/281
San Jose, CA 95193

Dr. Hans Morawitz
IBM Research Laboratory
5600 Cottle Road, K33/281
San Jose, CA 95193

Dr. Jack R. Morgan
Department of Chemistry
University of California
Los Angeles, CA 90024

Dr. B. Movaghar
Hirst Research Center
East Lane, Wembley
Middlesex HA9 7PP
ENGLAND, UK

Dr. Shaul Mukamel
Department of Chemistry
University of Rochester
Rochester, NY 14627

Professor Allan M. Nishimura
Westmont College
Department of Chemistry
955 La Paz Road
Santa Barbara, CA 93108

Mr. Michael Otteson
Department of Physics
Montana State University
Bozeman, MT 59717

Dr. Nassar Peyghambarian
Optical Sciences Center
University of Arizona
Tucson, 85721

Dr. M. R. Philpott
IBM Research Laboratory
5600 Cottle Road, K33/281
San Jose, CA 95193

Professor R. C. Powell
Oklahoma State University
Physics Department
Stillwater, OK 74078

Dr. Steven Rand
Hughes Research Laboratory
3011 Malibu Canyon Road
Malibu, CA 90265

Professor Dr. Peter Reineker
Abteilung fur Theor. Physik
Universitat Ulm
Oberer Eselsberg
D7900 Ulm, WEST GERMANY

Professor Karl Renk
Universite Regensburg
Fachbereich Physik
8400 Regensburg
WEST GERMANY

Professor John E. Rives
University of Georgia
Department of Physics
and Astronomy
Athens, GA 30602

Professor Lawrence G. Rowan
Physics & Astronomy Department
University of North Carolina
Chapel Hill, NC 27514

Dror Sarid
Optical Sciences Center
University of Arizona
Tucson, AZ 85721

Professor A. Schenzle
Physics Department
University of Essen
43 Essen, WEST GERMANY

Professor Jan Schmidt
Huygens Laboratory
University of Leiden
Postbox 9504
2300 Leiden, THE NETHERLANDS

Dr. Robert Shelby
IBM Research Laboratory
5600 Cottle Road, K32/281
San Jose, CA 95193

Professor S. Shionoya
Institute for Solid State Physics
University of Tokyo
Roppongi, Minato-Ku
Tokyo 106, JAN

Dr. David J. Singel
University of Leiden
Leiden, THE NETHERLANDS

Professor James L. Skinner
Columbia University
Department of Chemistry
New York, NY 10027

Professor Gerald J. Small
Department of Chemistry
Iowa State University
Ames, IA 50011

Professor J. J. Song
University of S. California
Los Angeles, CA 90024

Dr. E. Strauss
Universitat Oldenburg
FB-8 Physik
Ammerlander Heestr 67-99
D2900 Oldenburg, W. GERMANY

Professor H. Strauss
Chemistry Department
University of California
Berkeley, CA 94720

Dr. M. D. Sturge
Bell Telephone Laboratories
600 Mountain Road
Murray Hill, NJ 07974

Dr. A. Szabo
Electrical Engineering Department
National Research Council
M-50 Montreal Road
Ottawa, Ontario
CANADA K1A 0R8

Dr. Toshihida Takagahara
Institute for Solid State Physics
University of Tokyo
Roppongi, Minato-Ku
Tokyo 106, JAN

Dr. Anne C. Tropper
IBM Research Laboratory
5600 Cottle Road, K32/281
San Jose, CA 95193

Philip Trotter
Coherent Radiation
Porter Drive
Palo Alto, CA 94304

S. Velsko
Department of Chemistry
University of Pennsylvania
34th & Spruce Streets
Philadelphia, PA 19104

Dr. Jean-Claude Vial
Laboratoire de Spectrometrie Physique
University of Grenoble I
B.P. 68
38402 Saint Martin D'Herès
Cedex, FRANCE

Dr. Silvia Volker
Huygens Laboratory
University of Leiden
Wassenaarseweg 78
2300 RA Leiden
THE NETHERLANDS

Professor Harold W. de Wijn
Fysisch Laboratorium
Rijks Universiteit
PO Box 80.00
3508 TA Utrecht, THE NETHERLANDS

N. C. Wong
IBM Research Laboratory
5600 Cottle Road
San Jose, CA 95193

Professor John C. Wright
Chemistry Department
University of Wisconsin
Madison, WI 53706

Dr. Dietheim Wurtz
Institute for Theoretical Physics
University of Heidelberg
Philosophenweg 19
D-6900 Heidelberg
WEST GERMANY

C. L. Yang
Chemistry Department
UCLA
Los Angeles, CA 90024

Mr. Bob Yazell
Spectra Physics Inc.
Terra Bella
Mountain View, CA 94043

Professor W. M. Yen
Physics Department
University of Wisconsin
Madison, WI 53706

Dr. Gert Zumofen
Physical Chemistry Laboratory
ETH-Zentrum
Universitätsstr. 16
CH-8092 Zurich
SWITZERLAND

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